

PROTOCOL FOR INTERPRETATION AND USE OF SENSORY TESTING AND ANALYTICAL CHEMISTRY RESULTS FOR RE-OPENING OIL-IMPACTED AREAS CLOSED TO SEAFOOD HARVESTING

INTRODUCTION

The U.S. Food and Drug Administration (FDA) operates a mandatory safety program for all fish and fishery products under the provisions of the Federal Food, Drug and Cosmetic Act, the Public Health Service Act and related regulations. Actions and criteria discussed in this protocol should be followed in addition to the provisions already in place. The National Oceanic and Atmospheric Administration (NOAA) has the authority to close and open Federal waters for seafood harvest and operates the Seafood Inspection Program providing the agency seafood safety and quality expertise. After an oil spill has occurred, Federal and State agencies are faced with the issue of determining when the seafood from the previously contaminated area may once again be safe for harvest and human consumption. NOAA Office of Response and Restoration (OR&R) publication entitled *Managing Seafood Safety after an Oil Spill*¹ provides agencies guidance in such situations. This guidance and other input from both NOAA and the FDA have been used in consultation with the Environmental Protection Agency (EPA) and the Gulf Coast States to establish this protocol. This protocol is applicable to the re-openings of commercial and recreation fisheries in both federal and state waters.

In establishing this protocol it is important to understand the following principles:

- NOAA and the FDA are working with other federal and state agencies to protect consumers from adulterated and unsafe seafood, while minimizing undue economic burden on any impacted seafood industries.
- Once oil or chemical contaminants are visually observed on the surface, it is recommended that the fishery be closed until free of sheen, and subsequent testing has been completed to confirm that seafood from affected areas are wholesome and safe for human consumption and use in animal feed.
- After the initial fishery closure, the best approach for determining the safety and acceptability of seafood from oil-contaminated areas is one that involves organoleptic analysis of products (i.e. sensory testing) followed by chemical analysis.
- Fishery closure areas also include areas that NOAA projects will have surface oil and a precautionary buffer zone around known contaminated waters to account for uncertainty. After confirming through subsequent evaluation that oil did not enter an area, the area may be re-opened without subjecting seafood samples to evaluation under this protocol. This protocol is an added layer of protection being applied to seafood only in areas known to have been contaminated.

Oil contamination presents two kinds of risks: the presence of petroleum taint that renders seafood unfit for human consumption, and the presence of polycyclic aromatic hydrocarbons (PAHs) that are chemical hazards. Federal government and state agencies therefore close oil-contaminated harvest areas for health reasons.

Oil-contaminated seafood is adulterated if the contamination is perceivable by olfaction (taint), or in the absence of taint, chemical analysis determines that the level of PAHs in it exceeds FDA levels of concern. Consequently, after an oil spill, seafood suspected of oil contamination can only be brought into interstate commerce when it passes both sensory testing for petroleum taint, and chemical analysis for PAHs.

To date, available information indicates that the dispersants being used to combat the oil spill do not appear to accumulate in seafood and therefore, there is likely little public health concern from them due to seafood consumption. However, as per this protocol, sensory testing and further work to identify component compounds in known exposed fish will be conducted for dispersants.

The purpose of this protocol is to specify how the results of sensory testing and chemical analyses will be used in re-opening seafood closure areas. The principles of the protocol are as follows:

Generally:

1. The closure of a fishery assumes a worst case scenario, and is intended to protect seafood consumers until the safety of the seafood can be established.
2. Area re-opening will be based on an acceptable reduction of the threat of seafood exposure to oil contamination, and analyses that assure the safety and wholesomeness of the seafood.
3. Once seafood samples from an area pass sensory testing, area samples must also pass chemical analysis for PAHs before that fishery may be re-opened.
4. Re-openings may be fisheries specific.
5. Opening boundaries will be based on results of analyses (sensory and chemical) that demonstrate the product is untainted and safe for human consumption.

Specific Re-opening Criteria:

1. Low threat of exposure – Threat of exposure will be based on past observations and the status of the spill and conditions.
2. Evaluation of oil movement – Confirmation that the closure area is free of sheen on the surface by visual observation and/or aerial reconnaissance, or the presence of oil in the water column through visual observation or water testing.
3. Assessment of seafood contamination by sensory testing – Determine if the seafood is contaminated by tissue collection and sensory testing. The acceptable condition is that all specimens must pass sensory testing conducted by a NOAA-FDA expert sensory panel or a NOAA-FDA trained panel of state assessors.
4. Assessment of seafood contamination by chemical analyses – Chemical analyses are performed on samples that pass sensory assessment to confirm that PAH concentrations are below the applicable FDA levels of concern for human health. Final determinations may take into consideration what is known regarding relevant background information for specific harvest areas.

ANALYSIS

1. NOAA sensory testing protocol reviewed by FDA^{2,3}.
2. When sensory tested samples are acceptable, verify sensory testing outcomes with chemical analyses performed using the NOAA PAH method⁴.

ADDITIONAL INFORMATIVE DATA

Additional investigation protocols may be designed and used to assess water and sediment contamination, toxicity testing, ecological injury and other environmental parameters. These investigations are not directly related to or considered a part of this protocol, but can be extremely informative in the overall determination process. Data from these investigations will be reviewed prior to making any decisions to re-open an area or a fishery and may be the basis for requiring additional sampling/analysis as per this protocol. For example, sediment chemical data from fishery areas may be used to identify contaminant "hot spots." Water column data, toxicity test results and other data, required of BP or generated by federal (e.g. EPA) or state agencies, are among the various data that may be considered for any re-opening determination.

Water analysis for PAHs may be used to gain an understanding of the effectiveness of the containment and cleanup of the spill. Toxicity testing of water column or sediment samples for oil and dispersant related contaminants can also provide important insights on impacts to other biota. Such water analysis should be performed on representative samples of the affected water column. In addition water and tissue analysis may be used to determine any residual concentration of the dispersants used. The necessary sampling criteria will be based on many factors including the area of the closure, depth of the water within the closure, and sites and species considered for re-opening of harvest areas or fishery. With regard to inshore fisheries such as molluscan shellfish, sediment samples may also be analyzed.

Surveillance of fisheries should be conducted in response to identified "hot spots" or other relevant changes in environmental conditions (e.g., increases in PAH levels in water or seafood) if warranted, based on the protocol defined.

RE-OPENING PROCESS

NOAA, in consultation with FDA, will review the data generated as a result of the implementation of this protocol in federal waters, evaluate the accuracy and quality of the data and assess compliance with the agreed criteria. Based on this assessment NOAA may re-open federal waters subject to the closure. NOAA and FDA will coordinate with State agencies for the re-opening of State commercial waters to ensure orderly and appropriately enforced re-openings. No partial re-openings will be allowed which are unenforceable, i.e., requiring harvesters to segregate their catch and discard catch from fisheries that remain closed.

Sensory testing based on NOAA Technical Memorandum NOS OR&R 9: *Guidance on Sensory Testing and Monitoring of Seafood for Presence of Petroleum Taint Following an Oil Spill*² will be utilized. A panel of ten expert assessors from NOAA and/or the FDA, and state agencies if available, will conduct sensory testing. Samples will be examined by organoleptic methods both in the raw and cooked states. If samples from a particular fishery pass sensory testing within a defined sampling area, chemical analyses will be performed on representative samples from that same fishery and area⁴. If chemical analyses pass the risk based assessment criteria for the

species in question, that zone will be considered for re-opening. If samples from an area fail sensory testing a determination will be made as to when retesting will occur taking into consideration the conditions of the fishery and the failure results.

SELECTION OF TARGET PAHs and LEVELS OF CONCERN

Most petrochemical products such as diesel oil and crude oil contain aromatic components: mono-, bi-, and polycyclic aromatic hydrocarbons. Well-established liquid chromatography (LC)/fluorescence detection (FD) and gas chromatography (GC)/mass spectrometry (MS) methods are used to separate and quantify these contaminants in seafood.

PAHs are abundant in our environment; in addition to sources from petrochemical products they are generated by nearly all pyrolytic processes including forest fires, char-grilled and smoked meat, and fuel combustion in automobiles. Crude petroleum is composed of a complex mixture of many hundreds of compounds. Most of the compounds are volatile, and evaporate to produce the pungent odor of petroleum. Others are less volatile and persist in the environment (e.g. formation of tar balls or sink to the bottom). The PAHs in petroleum mixtures are of greatest concern for human health because of their persistence (i.e. lower evaporation rates), and their potential for toxic or carcinogenic effects. The subset of 12 PAHs and their alkylated homologues selected for critical analysis in the Deepwater Horizon Spill (Table I) are among the most studied PAHs in petroleum mixtures. These compounds have been found to reflect the potential for toxic or carcinogenic effects of the mixture of compounds present in crude petroleum⁵ based on experience with previous oil spills (e.g. North Cape Oil Spill, 1996, Rhode Island).

Most seafood risk assessments conducted after oil spills in the U.S. have followed an approach used by the FDA in 1990 after the *Exxon Valdez* oil spill in Prince William Sound, Alaska^{6, 7}. This approach uses a set of calculations to determine seafood (harvested for human consumption) PAH tissue concentrations, expressed in benzo[a]pyrene (BaP) equivalents ($\mu\text{g/kg}$), above which an appropriate, conservatively estimated upper-bound risk level for cancer is exceeded. Levels of concern for non-cancer risks are also evaluated. The values for several variables in these calculations can be adjusted on a case-by-case basis, depending on seafood consumption rates of the exposed population, average body weight of the exposed population, estimates of exposure time for a particular spill, and the cancer risk level deemed appropriate. This approach to calculating seafood advisory levels has been used after several other oil spills, including the *North Cape* spill in Rhode Island, the *Julie N* spill in Maine, the *Kure* spill in California, and the *New Carissa* spill in Oregon.

The level of appropriate risk is the maximum level of individual lifetime carcinogenic risk that is considered appropriate by risk managers. The relative risk level to be used for low dose cancer risk calculations is 1×10^{-5} . This implies that exposure to PAH in seafood below a specified tissue concentration, at a defined consumption rate, and over a defined exposure period would yield a lifetime cancer risk of no greater than 1 in 100,000. A risk level of 1×10^{-5} was used in the risk assessment conducted by the State of Maine for the *Julie N* oil spill and the State of Alaska for the *Kuroshima* oil spill¹.

Depending upon levels of petrogenic PAHs accumulated by aquatic species, consumption of petroleum contaminated fishery products may pose a health risk to seafood consumers. The risk is considered higher for high-level consumers of fishery products. These concerns necessitate

consideration of consumption rates for high-level consumers of fish, shrimp, crab and oysters. FDA uses the 90th percentile of national consumption data from the National Health and Nutrition Examination Survey (NHANES) for fish, shrimp, crab and oysters for calculating risk of PAH exposure in high-level consumers of seafood products. To determine an appropriate fish consumption rate for high-level consumers, FDA adjusted the 90% meal size to account for the number of meals eaten by a 90th percentile consumer.

Table I shows the criteria for re-opening based upon non-cancer risks and a 1×10^{-5} cancer risk for different PAHs. For the non-cancer evaluation (naphthalene, fluorene, anthracene, phenanthrene, pyrene, and fluoranthene) the EPA Integrated Risk Information System (IRIS) reference dose (RfD) values were used⁸⁻¹³. For the cancer evaluation (chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benz(a)anthracene, indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene, and benzo(a)pyrene), the EPA IRIS BaP equivalence (BaPE) values were used¹⁴. The EPA IRIS cancer slope factor for BaP was also used. As discussed above, 90th percentile consumption values were used for generating calculations for average daily consumption rates of shrimp and crabs, oysters and finfish for consumers only. For generating cancer risk values, exposures are assumed to last for 5 years.

Recent results from PAH chemical analysis of finfish (grouper, red snapper and red drum) collected by NOAA from the unaffected Dauphin Island area in early May 2010 show PAH concentrations to be below the levels of concern shown in Table I. An evaluation of PAH chemical analysis data collected by the NOAA mussel watch program showed that in 2007-2008 average concentrations were below FDA levels of concern in oysters in commercially harvestable areas.

Final determinations for opening oil spill affected fisheries and areas may take into consideration available PAH background level data and assumptions on duration of exposure.

Criteria for Sensory Testing

A minimum of 6 sub-samples per species (3 sub-samples for oysters) from each sample location in the area under consideration for re-opening must be tested. A sub-sample will consist of an individual organism for legal size finfish and multiple organisms for shrimp and shellfish, depending on the intact animal type (e.g. 3 to 6 blue crabs, 6 oysters, 0.4 – 0.5 lb shrimp). The samples will be evaluated by a panel of a minimum of 10 expert assessors in the raw and cooked state. Samples will be evaluated first for raw odor, then cooked odor, then cooked flavor in that order. If at any time the analyst finds detectable petroleum or dispersant, the analyst will not further evaluate the sample.

For a closed fisheries area to be considered for re-opening, the following criteria must be met (these criteria are based on past oil spill information and ensure a high confidence level that the seafood is not tainted by oil):

- A minimum of seventy percent (70%) of the expert assessors must find NO detectable petroleum or dispersant odor or flavor from each sub-sample. If any sub-sample fails, the sample location fails.
- All contiguous stations or sample locations must pass for an area to open.

If the area passes the sensory test then samples will undergo chemical analyses. Samples must then pass chemical analyses for PAHs before the area may re-open.

Criteria for Chemical Analyses

For crabs specifically, a sample of edible muscle from a minimum of ten (10) individuals, of legal size if available, should be collected from each sampling location. Tissue samples from individual crabs will be combined to make separate composite samples of the muscle tissue. For all other seafood, a sample of edible tissue from a composite (of at least 200 grams) from a minimum of 10 or more individuals collected at or near the locations specified is required. All samples should be collected from sites selected as commonly used fishing grounds or normally harvestable molluscan shellfish bed.

Contaminant Levels in Fish and Shellfish Tissue that Pose No Significant Risk

The safety of commercial seafood is generally determined by comparison of tissue contaminant concentrations to FDA levels of concern. Risk-based criteria to establish the safety of commercial or recreational fish and shellfish following an oil spill were developed using standard FDA and EPA risk assessment methods, as described below.

Cancer Risk

In order to interpret the cancer risk for individual PAH compounds likely to be found in the Gulf of Mexico light crude petroleum, the carcinogenic activity relative to benzo(a)pyrene (BaP) is estimated as a toxicity equivalency factor (TEF)⁸. TEFs for chrysene, benzo[k]fluoranthene, benz[a]anthracene, indeno[1,2,3-cd]pyrene, benzo[b]fluoranthene, and dibenz[a,h]anthracene are 0.001, 0.01, 0.1, 0.1, 0.1, and 1 respectively. Tissue concentrations of PAHs other than BaP are multiplied by their respective TEF and added to the tissue concentration of BaP to determine the BaP equivalent (BaPE) concentration. The BaPE concentration is considered the most valid measure of the carcinogenic potency of a complex mixture of PAH compounds. For the purpose of this risk assessment, substituted alkylated homologues of the above PAHs will be summed with the parent compound and multiplied as a single value by the appropriate TEF.

The following equation was used to determine the public health levels of concern (LOC: in µg/g or mg/kg = ppm wet weight) for carcinogenic PAH compounds (BaPE) potentially found in seafood:

$$LOC (BaPE) = (RL \times BW \times AT \times CF) / (CSF \times CR \times ED)$$

Where *LOC* is the level of concern; BaPE is the benzo(a)pyrene equivalency; *RL* is the risk level; *BW* is the average consumer body weight; *AT* is the averaging time (i.e. life expectancy); *CF* is the unit conversion factor; *CSF* is the cancer slope factor of BaP; *CR* is the consumption rate (the daily amount of seafood consumed); and *ED* is the assumed exposure duration.

The following specific factors and assumptions were used in the above equation:

- Risk Level (RL): Risk-based criteria were selected to prevent consumers from being exposed to the carcinogenic components of crude petroleum in doses that exceed a RL of 1×10^{-5} (1 in 100,000). This RL is within the acceptable range of risks (1×10^{-4} to 1×10^{-6}) used by the FDA and EPA in regulatory criteria for food and drinking water¹⁵ and is

provided as an example of an acceptable risk level in the *U.S. EPA Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories*¹⁶.

- Body Weight (BW): The average adult body weight for these calculations, 80 kg, was adopted from the most recent CDC National health Statistics Report¹⁷.
- Averaging Time (AT): The averaging time for these calculations, 78 yr, was adopted from the most recent CDC National Health Statistics Report¹⁸.
- Conversion Factor (CF): Unit conversion factor (1000 µg/mg).
- Cancer Slope Factor (CSF): Also known as a *Cancer Potency Factor*: The upper-bound estimate of the probability that an individual will develop cancer over a lifetime as a consequence of exposure to a given dose of a specific carcinogen. For the purpose of this risk assessment, U.S. EPA current CSF for benzo[a]pyrene of 7.3 (mg/kg-day)⁻¹ was adopted (U.S. EPA, 1994)¹⁴.
- Consumption Rate (CR): Consumption rates for shrimp & crab (13 g/day), oysters (12 g/day), and finfish (49 g/day) were adopted from 2005-2006 NHANES data for high level (90th percentile) seafood consumers adjusted for consumption frequency. To determine an appropriate fish consumption rate for high-level consumers, FDA adjusted the 90% meal size to account for the number of meals eaten by a 90th percentile consumer¹:

[meal frequency /30 days in month] x meal size = grams seafood per day

Where:

Meal frequency = 9.1 meals per month for finfish; 2.9 for oysters; and 4.4 for shrimp/crab

Days per month = 30

Meal size = 160 g for finfish; 120 g for oysters ; 90 g for shrimp/ crab

Grams seafood/day = 49 g for finfish; 12 g for oysters; and 13 for shrimp/crab

- Exposure Duration (ED): The exposure duration was assumed to be 5 yr. This is a conservative estimate of the potential retention period of Deepwater Horizon oil contaminants in Gulf seafood.

Calculation of the Public Health Levels of Concern for Carcinogenic PAHs (BaPE) in Seafood:

Applying the specific factors and assumptions to the equation above results in the following LOC for BaPE in finfish:

$$[(1 \times 10^{-5})(80 \text{ kg})(78 \text{ yr})(1000 \text{ µg/mg}) / [7.3 \text{ (mg/kg-day)}^{-1}(49 \text{ g/day})(5 \text{ yr})]] = 0.035 \text{ µg/g or ppm BaPE}$$

Applying the specific factors and assumptions to the equation above results in the following LOC for BaPE in shrimp/crabs:

¹ For 90th percentile consumption values, data from the 2005-2006 NHANES two day recall survey were used. To determine the average daily rate for these consumers, the 2005-2006 30 day recall survey was used to determine frequency of seafood meals by 90th percentile consumers.

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$$[(1 \times 10^{-5})(80 \text{ kg})(78 \text{ yr})(1000 \text{ } \mu\text{g}/\text{mg})] / [7.3 \text{ (mg/kg-day)}^{-1}(13 \text{ g/day})(5 \text{ yr})] = 0.132 \text{ } \mu\text{g/g or ppm BaPE}$$

Applying the specific factors and assumptions to the equation above results in the following LOC for BaPE for oysters:

$$[(1 \times 10^{-5})(80 \text{ kg})(78 \text{ yr})(1000 \text{ } \mu\text{g}/\text{mg})] / [7.3 \text{ (mg/kg-day)}^{-1}(12 \text{ g/day})(5 \text{ yr})] = 0.143 \text{ } \mu\text{g/g or ppm BaPE}$$

Non-Cancer Risks

Non-cancer risks were determined for anthracene, phenanthrene, fluoranthene, fluorene, naphthalene, and pyrene. For the purpose of this risk assessment, substituted homologues of the above PAHs will be summed with the parent compound and compared to the appropriate toxicity criterion. The following general equation was used to set the public health protective level of concern ($\mu\text{g/g}$ or mg/kg = ppm wet weight) for these compounds potentially found in seafood:

$$LOC = (RfD)(BW)(CF)/CR$$

Where *RfD* is reference dose; *BW* is the body weight (kilograms); *CF* is the conversion factor (1000 $\mu\text{g}/\text{mg}$); and *CR* is the consumption rate (the daily amount of fish or shellfish consumed).

The following specific factors and assumptions were used in the above equation:

- Reference Dose (RfD): An estimate of daily human exposure to a chemical that is likely to be without significant risk of adverse effects during a lifetime, in mg/kg/day . RfDs for selected PAH compounds were obtained from the U.S. EPA's Integrated Risk Information Service (IRIS) database (accessed June, 2010; see references for specific chemicals).
- Body Weight (BW): The average adult body weight for these calculations, 80 kg, was adopted from the most recent CDC National Health Statistics Report¹⁵.
- Conversion Factor (CF): Unit conversion factor (1000 $\mu\text{g}/\text{mg}$).
- Consumption Rate (CR): Consumption rates for shrimp & crab (13 g/day), oysters (12 g/day), and finfish (49 g/day) were adopted from 2005-2006 NHANES data for high level (90th percentile) seafood consumers adjusted for consumption frequency as described above.

Using the above equation and assumptions, the non-cancer public health levels of concern for individual PAHs were calculated and are presented in Table 1.

The PAH levels of concern in Table I are based upon seafood consumption rates derived from 90th percentile, seafood consumers only, data from the 2005-2006 NHANES survey adjusted for consumption frequency. FDA and NOAA are taking this approach to ensure protection for the diverse US population as fisheries are re-opened. This approach may not necessarily affect a particular state's local and state-wide fish advisories or a state's determination regarding the opening or closing of state waters. As appropriate, states should use the best-available, relevant, state-specific data to make local and state-wide determinations. The PAH levels of concern, and

factors for their derivation, were developed specifically for the unprecedented Deepwater Horizon Oil Spill event, and will not necessarily be applicable after all fisheries closed due to oil contamination are re-opened for safe harvest. Levels of concern and other factors for any subsequent oil spill event would be independently evaluated based on case-specific information.

Table I
Levels of Concern

Chemical ¹	Levels of Concern (ppm)			Basis
	13 g/day (Shrimp and Crabs)	12 g/day (Oysters)	49 g/day (Finfish)	
Naphthalene	123	133	32.7	Non-cancer EPA RfD ² ; 80kg bw
Fluorene	246	267	65.3	Non-cancer EPA RfD ² ; 80kg bw
Anthracene/Phenanthrene	1846	2000	490	Non-cancer EPA RfD ² ; 80kg bw
Pyrene	185	200	49.0	Non-cancer EPA RfD ² ; 80kg bw
Fluoranthene	246	267	65.3	Non-cancer EPA RfD ² ; 80kg bw
Chrysene	132	143	35.0	Cancer 0.001 BaP equivalent ³
Benzo(k)fluoranthene	13.2	14.3	3.5	Cancer 0.01 BaP equivalent ³
Benzo(b)fluoranthene	1.32	1.43	0.35	Cancer 0.10 BaP equivalent ³
Benz(a)anthracene	1.32	1.43	0.35	Cancer 0.10 BaP equivalent ³
Indeno(1,2,3-cd)pyrene	1.32	1.43	0.35	Cancer 0.10 BaP equivalent ³
Dibenz(a,h)anthracene	0.132	0.143	0.035	Cancer 1.0 BaP equivalent ³
Benzo(a)pyrene	0.132	0.143	0.035	10 ⁻⁵ Cancer risk = (0.110 µg/person/day)(78/5 yr) ³

¹ Includes alkylated homologues, for example C-1, C-2, C-3, C-4 naphthalenes, fluorenes, anthracenes, fluoranthenes, pyrenes and chrysenes. Alkylated homologues are assumed to have similar toxicities to the parent compounds.

²With respect to the Basis:

Chemical	RfD x Body Wt. x CF/ Intake
Naphthalene:	(0.02 mg/kg/day x 80 kg x 1000 µg/mg) / Intake (g/day)
Fluorene:	(0.04 mg/kg/day x 80 kg x 1000 µg/mg) / Intake (g/day)
Anthracene:	(0.30 mg/kg/day x 80 kg x 1000 µg/mg) / Intake (g/day)
Pyrene	(0.03 mg/kg/day x 80 kg x 1000 µg/mg) / Intake (g/day)
Fluoranthene	(0.04 mg/kg/day x 80 kg x 1000 µg/mg) / Intake (g/day)

³Criteria are based on a one-in-a-one hundred thousand increase in the lifetime (78 yr) upper bound cancer risk adjusted to account for exposures which are expected to last 5 years (78/5 yr). For any sample containing, chrysene, benzo(k)fluoranthene, benzo(b)fluoranthene, benz(a)anthracene, indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene or benzo(a)pyrene, the sum of the individual ratios of the detected levels to the levels of concern cannot exceed 1.

Cancer risk-based criteria:

Chemical	[(RL x BW)/CSF x (AT/ED)]/[Intake x TEF]
Chrysene	[0.110 µg/p/day x (78/5 yr)] / [Intake (g/day) x 0.001]
Benzo(k)fluoranthene	[0.110 µg/p/day x (78/5 yr)] / [Intake (g/day) x 0.01]
Benzo(b)fluoranthene	[0.110 µg/p/day x (78/5 yr)] / [Intake (g/day) x 0.1]
Benz(a)anthracene	[0.110 µg/p/day x (78/5 yr)] / [Intake (g/day) x 0.1]
Indeno(1,2,3-cd)pyrene	[0.110 µg/p/day x (78/5 yr)] / [Intake (g/day) x 0.1]
Dibenz(a,h)anthracene	[0.110 µg/p/day x (78/5 yr)] / Intake (g/day)
Benzo(a)pyrene	[0.110 µg/p/day x (78/5 yr)] / Intake (g/day)

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Parts 622, 635, 640, and 654

[Docket No.]

RIN 0648-AY90

Fisheries of the Caribbean, Gulf of Mexico, and South Atlantic; Emergency Fisheries
Closures in the Southeast Region Due to the Deepwater Horizon MC252 Oil Spill;
Amendment 3

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and
Atmospheric Administration (NOAA), Commerce.

ACTION: Emergency rule; amendment; request for comments.

SUMMARY: NMFS issues this action to amend the emergency regulations published on May 14, 2010 in response to the evolving nature of the Deepwater Horizon MC252 oil spill. This emergency rule continues to allow NMFS to make timely revisions to the area in the U.S. exclusive economic zone (EEZ) closed to all fishing, and extends this authority to allow NMFS to prohibit U.S. registered vessels from fishing in the adjacent high seas affected by the oil spill. This emergency rule also revises the conditions for reopening areas previously closed to fishing by exempting species not typically consumed by humans (non-consumptive species) such as sponges, liverock, and octocoral from the testing protocol. This rule amends the regulations that became effective May 11, 2010 (75 FR 27217, May 14, 2010), and will remain in effect until

revised by subsequent rulemaking, which will occur after the conditions resulting from the oil spill no longer exist. The U.S. Food and Drug Administration (FDA) concurs with NMFS= implementation of fisheries closures in oil affected areas as an appropriate public health measure to prevent potentially unsafe seafood from being harvested and reaching consumers. The intent of this rule is to prohibit harvest of adulterated seafood while promoting public safety and consumer confidence in seafood products from areas affected by the oil spill.

DATES: This rule is effective [insert date of publication in the Federal Register].

Comments may be submitted through [insert date 30 days after date of publication in the Federal Register].

ADDRESSES: You may submit comments on this rule, identified by A0648-AY90" by any of the following methods:

- ! Electronic Submissions: Submit all electronic public comments via the Federal e-Rulemaking Portal: <http://www.regulations.gov>.
- ! Fax: 727-824-5308; Attention: Anik Clemens.
- ! Mail: Anik Clemens, Southeast Regional Office, NMFS, 263 13th Avenue South, St. Petersburg, FL 33701.

Instructions: No comments will be posted for public viewing until after the comment period. All comments received are a part of the public record and will generally be posted to <http://www.regulations.gov> without change. All Personal Identifying Information (for example, name, address, etc.) voluntarily submitted by the

commenter may be publicly accessible. Do not submit Confidential Business Information or otherwise sensitive or protected information.

To submit comments through the Federal e-Rulemaking Portal:

<http://www.regulations.gov>, enter ANOAA-NMFS-2010-0103" in the keyword search, then select ASend a Comment or Submission.@ NMFS will accept anonymous comments (enter N/A in the required fields, if you wish to remain anonymous). You may submit attachments to electronic comments in Microsoft Word, Excel, WordPerfect, or Adobe PDF file formats only.

Copies of the supplemental environmental assessment, which includes a finding of no significant impact, may be obtained from Cynthia Meyer, Southeast Regional Office, NMFS, 263 13th Avenue South, St. Petersburg, FL 33701-5505; telephone: 727-824-5305; e-mail: cynthia.meyer@noaa.gov.

FOR FURTHER INFORMATION CONTACT: Anik Clemens, telephone: 727-824-5305, fax: 727-824-5308, e-mail: anik.clemens@noaa.gov.

SUPPLEMENTARY INFORMATION: The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) provides the legal authority for the promulgation of emergency regulations under section 305(c).

Background

NMFS responded to the April 20, 2010 Deepwater Horizon MC252 oil spill by closing a portion of the Gulf EEZ to all fishing through an emergency rule effective May 2, 2010 (75 FR 24822, May 6, 2010). The closure covered an area of the Gulf measuring 6,817 square miles (17,655 square km), or approximately 3 percent of the

total area of the Gulf EEZ. Oil continued to leak from the Deepwater Horizon MC252 site and the spatial and temporal location of the oil in the Gulf EEZ continued to change. NMFS revised the closed area in a second emergency rule that became effective May 7, 2010 (75 FR 26679, May 12, 2010). This second emergency rule closed an area of the Gulf measuring 10,807 square miles (27,989 square km), or approximately 4.5 percent of the total area of the Gulf EEZ. NMFS issued a third emergency rule, effective May 11, 2010 (75 FR 27217, May 14, 2010) to allow NMFS to make more timely revisions to the area closed to all fishing based on the current location of the oil spill. Wind speed and direction, currents, waves, and other weather patterns lead to changes in oil location. This third emergency rule allowed NMFS to revise the closed area on a daily or weekly basis and announce the revised closed area via NOAA Weather Radio, Fishery Bulletin, and NOAA website updates. The current area in the Gulf closed to all fishing, as of June 1, 2010, measures 75,920 square miles (196,633 square km), or approximately 31 percent of the total area of the Gulf EEZ. The majority of the Gulf still remains open to fishing.

In the third emergency rule, NMFS identified a protocol for reopening closed areas. Closed areas may be reopened if NMFS has determined that oil from the Deepwater Horizon MC252 oil spill has never been in that area. Closed areas may also be reopened if NMFS has determined that fish and other marine species located in that area have returned to their baseline levels of hydrocarbons. In collaboration with the FDA, NOAA is developing specific guidelines under this protocol for reopening oil-impacted areas closed to seafood harvesting. This protocol includes both sensory evaluation and chemical testing of seafood harvested from the closed areas. Oil-

contaminated seafood is considered adulterated if chemical analysis verifies that the level of polycyclic aromatic hydrocarbons (PAHs) exceeds the FDA's baseline PAH levels or if the oil contamination is perceivable by olfaction. NMFS will reopen previously closed areas that were affected by oil from the Deepwater Horizon MC252 oil spill only if it is determined that fish products within the closed area meet FDA standards for public health. To that end, NOAA, in conjunction with FDA, is continuing to refine a reopening protocol.

Provisions Implemented by this Emergency Rule

The oil released from the Deepwater Horizon MC252 incident continues over time to move in location and is now approaching the high seas. For public safety and to prevent the harvest of adulterated seafood product from those areas, this rule prohibits U.S. registered vessels (all vessels registered in the U.S. by a Federal or state agency) from fishing in areas of the high seas adjacent to the U.S. EEZ affected by the oil spill. Section 3 of the Magnuson-Stevens Act, defines high seas as all waters beyond the territorial sea of the United States and beyond any foreign nation's territorial sea, to the extent that such sea is recognized by the United States. @

Coordinates of those areas of the high seas that are closed will be announced via NOAA Weather Radio, Fishery Bulletin, and NOAA website updates. This rule also revises the conditions under which NMFS will reopen areas that were closed to all fishing due to the oil spill. Species that are non-consumptive, such as sponges, liverock, and octocoral are exempt from testing for hydrocarbons and, therefore, NMFS

will reopen these fisheries on a case-by-case basis after NMFS has determined that oil is no longer present in an area previously closed to all fishing due to the oil spill.

Comments and Responses

Section 305(c)(3)(C) of the Magnuson-Stevens Act requires that the public has an opportunity to comment on emergency regulations after the regulation is published, for an emergency rule that responds to a public health emergency or an oil spill. Therefore, NMFS solicited comments in the previous three oil spill related emergency rules and is also soliciting comments through this emergency rule. NMFS received 3 comments on the first emergency rule effective May 2, 2010 (75 FR 24822, May 6, 2010) and no comments on the second emergency rule effective May 7, 2010 (75 FR 26679, May 12, 2010). The comment period for the third emergency rule ends June 10, 2010, after a 30-day comment period. NMFS will post any comments received during the comment period on the third emergency rule on June 10, 2010 and will respond to those comments in subsequent rulemaking. NMFS is soliciting comment on this fourth emergency rule for 30 days and will respond to those comments in subsequent rulemaking. The following is a summary of the comments NMFS received on the first emergency rule, and NMFS= respective responses.

Comment 1: This fisheries closure is arbitrary and capricious. Preventing tag and release of fish in the closed area does not protect consumers or the commercial industry and misses an opportunity to see if there are any short or long-term effects on fisheries from the spill.

Response: NMFS is closing areas in oil affected waters to all fishing for public safety concerns as well as for public health reasons. These fisheries closures are intended to prevent fishermen from potential harm in areas within the vicinity of the Deepwater Horizon MC252 site as well as prevent the harvest of adulterated seafood product. Fish and shellfish in oil affected waters may be contaminated with levels of hydrocarbons above baseline levels. The FDA considers such seafood to be adulterated, as defined under § 402(a) of the Food, Drug, and Cosmetic Act of 1938. In order to aid in enforcement efforts and reduce regulatory confusion, even tag and release fishing is prohibited in these closed areas. Species targeted in catch and release fisheries still have the potential to be consumed, and the public health concerns related to adulterated seafood product are still relevant.

Federal agencies, including NMFS, as well as state agencies, several Universities, and other authorized researchers have launched research vessels to the oil affected areas to collect samples of fish and other marine species as well as water quality to determine pre-spill and post-spill impacts on both resources and habitat. NOAA and the FDA are implementing a two-part test to reopen previously closed areas. The test involves sensory and chemical testing. If the seafood passes the sensory test, it must then pass a chemical analysis for certain PAHs. To reopen a closed area for the harvest of non-consumptive species (liverock, sponges, octocorals, etc.), NMFS must determine that oil is no longer present in those areas.

Comment 2: Eating fish harvested from oil affected waters is not necessarily dangerous, it just might taste really bad.

Response: To ensure the safety of seafood harvested from the Gulf, NOAA is working with the FDA to implement a broad-scaled seafood sampling plan. The plan includes sampling from inside and outside the closed area, as well as dockside and market-based sampling. NOAA is also increasing its monitoring of the biological implications of oil and dispersant. NMFS is prohibiting fishing in oil affected waters to assure consumer confidence in seafood harvested from the Gulf.

Comment 3: People are concerned about Gulf waters being unsafe due to the oil spill. The media has many in a near state of panic. If we cannot convince them differently, our entire fishing industry will be in great danger. Opening the red snapper season early would jump start the survival of the entire industry, and the many factors dependent on our fisheries.

Response: Approximately 70 percent, or the vast majority of Gulf waters have not been affected by the oil spill and continue to support productive fisheries and tourism activities. NMFS encourages fishermen to continue with their fishing practices in the open areas of the EEZ, however, NMFS strongly advises fishermen not to fish in areas where oil or oil sheen is present, even if those areas are not currently closed to fishing.

NMFS recently implemented an increased sampling protocol for recreational fishing vessels in the Gulf (under Office of Management and Budget (OMB) control number 0648-0052) to provide more timely and localized tracking of changes in charter boat fishing effort that may be related to the oil spill. The number of captain interviews conducted weekly will substantially increase thereby making it possible to produce a weekly rather than bi-monthly report on fishing effort. This increase in data collection

will allow NMFS to better determine the effects of the oil spill on Gulf recreational fisheries. Results from the increased sampling program can be used to evaluate seasonal fishery closures for such species as red snapper and greater amberjack. If sampling indicates quotas are not being met prior to each seasonal closure, NMFS would publish a notification in the Federal Register to increase the season length if warranted.

Updated Fisheries Closure Information

The updated closed area may be obtained by listening to NOAA Weather Radio, by visiting the NMFS Southeast Regional Office Web site at: <http://sero.nmfs.noaa.gov>, by calling 1-800-627-NOAA (1-800-627-6622) or the NMFS Southeast Regional Office, Sustainable Fisheries Division at 727-824-5305, by text messaging fishing@gulf to 84469, or by using Twitter: type in Ausnoaagov@ to receive a tweet when the closed area changes. The NMFS Southeast Regional Office Web site includes a map of the closed area, updated fishery bulletins and other useful information related to the Deepwater Horizon MC252 oil spill. To give fishermen enough time to come into compliance with the revised closed area, NMFS announces the revised closed area daily at 12 noon, eastern time (11 a.m. central time). The revised closed area becomes effective at 6 p.m. eastern time (5 p.m. central time). If no changes are made to the closed area on a given day, that is announced as well.

Future Action

NMFS continues to assess the impacts this oil spill is having on the fishing industry, as well as on the fish and other marine species that inhabit these waters. As

new information becomes available, NMFS will evaluate the need for fisheries closures and will work with the FDA on future decisions to reopen currently closed areas as appropriate.

Classification

This action is issued pursuant to section 305(c) of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), 16 U.S.C. 1855(c).

This rulemaking is a "significant regulatory action" under section 3(f) of Executive Order 12866. The Department of Commerce has notified the OMB Office of Information and Regulatory Affairs (OMB/OIRA) under section 6(a)(3)(D) of the Executive Order, and OMB/OIRA agrees, that NOAA is promulgating this action in an emergency situation and that normal Executive Order review is not practicable at this time. For this reason, OMB/OIRA has not reviewed this notice under EO 12866.

The Assistant Administrator for Fisheries, NOAA (AA), finds good cause under 5 U.S.C. 553(b)(B) to waive prior notice and the opportunity for public comment. Prior notice and opportunity for public comment would be impracticable and contrary to the public interest, as delaying action constitutes a public safety concern. This action allows NMFS to close areas in the high seas adjacent to the U.S. EEZ, as well as areas in the U.S. EEZ, affected by the oil spill to U.S. registered vessels to help prevent the harvest of adulterated seafood product. This action will also allow NMFS to reopen areas to fishing for certain species which are not typically consumed by the public, such as liverrock, sponges, and octocoral, on a case-by-case basis when NMFS has determined that oil is no longer present in these areas, but not require the more

extensive reopening protocol applicable to seafood species. This will help reduce the economic impact of the oil spill on fishermen in these fisheries. Any delay of implementation of this emergency action could pose a clear risk of the harvest of adulterated seafood product, which is not in the public interest, and unnecessary economic losses to fishermen who harvest non-seafood marine species. Thus, the AA finds good cause to waive prior notice and the opportunity for public comment.

For the reasons stated above, the AA also finds good cause to waive the 30-day delay in effective date of this rule under 5 U.S.C 553(d)(3).

Because prior notice and opportunity for public comment are not required for this rule by 5 U.S.C. 553 or any other law, the analytical requirements of the Regulatory Flexibility Act, 5 U.S.C. 601 et seq. are inapplicable.

List of Subjects

50 CFR Part 622

Fisheries, Fishing, Puerto Rico, Reporting and recordkeeping requirements, Virgin Islands.

50 CFR Part 635

Fisheries, Fishing, Fishing vessels, Imports, Reporting and recordkeeping requirements, Treaties.

50 CFR Part 640

Fisheries, Fishing, Incorporation by reference, Reporting and recordkeeping requirements.

50 CFR Part 654

Fisheries, Fishing.

Dated:

For the reasons set out in the preamble, 50 CFR parts 622, 635, 640, and 654 are amended as follows:

PART 622--FISHERIES OF THE CARIBBEAN, GULF, AND SOUTH ATLANTIC

1. The authority citation for part 622 continues to read as follows:

Authority: 16 U.S.C. 1801 et seq.

2. In ' 622.7, paragraph (jj) is revised to read as follows:

' 622.7 Prohibitions.

* * * * *

(jj) Harvest a Caribbean spiny lobster, effective [insert date of publication in the Federal Register], in the portion of the Caribbean EEZ or adjacent high seas designated in ' 622.33(c), due to the Deepwater Horizon MC252 oil spill.

3. In ' 622.33, paragraph (c) is revised to read as follows:

' 622.33 Caribbean EEZ seasonal and/or area closures.

* * * * *

(c) Caribbean EEZ and adjacent high seas area closure related to Deepwater Horizon MC252 oil spill. Effective [insert date of publication in the Federal Register], all fishing is prohibited in the portion of the Caribbean EEZ and adjacent high seas, identified in the map shown on the NMFS website:

http://sero.nmfs.noaa.gov/deepwater_horizon_oil_spill.htm

4. In ' 622.34, paragraph (n) is revised to read as follows:

' 622.34 Gulf EEZ seasonal and/or area closures.

* * * * *

(n) Gulf EEZ and adjacent high seas area closure related to Deepwater Horizon MC252 oil spill. Effective [insert date of publication in the Federal Register], all fishing is prohibited in the portion of the Gulf EEZ and adjacent high seas, identified in the map shown on the NMFS website:

http://sero.nmfs.noaa.gov/deepwater_horizon_oil_spill.htm

* * * * *

5. In ' 622.35, paragraph (m) is revised to read as follows:

' 622.35 Atlantic EEZ seasonal and/or area closures.

* * * * *

(m) Atlantic EEZ and adjacent high seas area closure related to Deepwater Horizon MC252 oil spill. Effective [insert date of publication in the Federal Register], all fishing is prohibited in the portion of the South Atlantic EEZ and adjacent high seas,

identified in the map shown on the NMFS website:

[http://sero.nmfs.noaa.gov/deepwater horizon oil spill.htm](http://sero.nmfs.noaa.gov/deepwater_horizon_oil_spill.htm)

PART 635B ATLANTIC HIGHLY MIGRATORY SPECIES

6. The authority citation for part 635 continues to read as follows:

Authority: 16 U.S.C. 1801 et seq.

7. In ' 635.21, paragraph (a)(4)(vii) is revised to read as follows:

' 635.21 Gear operation and deployment restrictions.

* * * * *

(a) * * *

(4) * * *

(vii) Caribbean, Gulf, and South Atlantic EEZ and adjacent high seas area closures related to Deepwater Horizon MC252 oil spill. Effective [insert date of publication in the Federal Register], no vessel issued, or required to be issued, a permit under this part, may fish or deploy any type of fishing gear in the areas designated at ' 622.33(c), 622.34(n), or 622.35(m) of this chapter.

* * * * *

PART 640--SPINY LOBSTER FISHERY OF THE GULF OF MEXICO AND SOUTH ATLANTIC

8. The authority citation for part 640 continues to read as follows:

Authority: 16 U.S.C. 1801 et seq.

9. In ' 640.7, paragraph (x) is revised to read as follows:

' 640.7 Prohibitions.

* * * * *

(x) Harvest a spiny lobster, effective [insert date of publication in the Federal Register], in the portion of the Gulf or South Atlantic EEZ or adjacent high seas, designated in ' 622.34(n) or ' 622.35(m) of this chapter, respectively, due to the Deepwater Horizon MC252 oil spill.

PART 654--STONE CRAB FISHERY OF THE GULF OF MEXICO

10. The authority citation for part 654 continues to read as follows:

Authority: 16 U.S.C. 1801 et seq.

11. In ' 654.7, paragraph (s) revised to read as follows:

' 654.7 Prohibitions.

* * * * *

(s) Pull or tend a stone crab trap, effective [insert date of publication in the Federal Register], in the portion of the Gulf EEZ or adjacent high seas designated in ' 622.34(n) of this chapter, due to the Deepwater Horizon MC252 oil spill.

**Recovered Oil, Contaminated Materials and Liquid and Solid Wastes
Management Directive
June 25, 2010**

This Directive is issued by the Federal On-Scene Coordinator ("FOSC") for the response to the spill at the offshore oil and gas exploration, drilling and production facility identified as the Mississippi Canyon 252 ("MC-252") facility, located in the western portion of the Outer Continental Shelf in the Gulf of Mexico, with the concurrence of the Environmental Protection Agency ("EPA"), to BP Exploration and Production, Inc. ("BP") pursuant to Section 311 of the Clean Water Act, 33 U.S.C. § 1321, to address oil, contaminated materials and liquid wastes recovered in cleanup operations from the MC-252 facility.

1. Implementation of June 14, 2010 Waste and Materials Management Plan. BP shall immediately implement and comply with the "Recovered Oil / Waste Management Plan – Houma Incident Command," approved on June 14, 2010 (attached, and online at http://www.epa.gov/bpspill/waste/r6_waste_plan_kmr20100615_1524.pdf), any amendments thereto (hereinafter, the "Waste and Materials Management Plan"), and any Deliverable required by this Directive, for the identification, characterization, handling, management and disposal of oil, contaminated materials and liquid wastes recovered in cleanup operations resulting from the discharge of oil from the MC-252 facility.
2. EPA Access to Facilities. BP shall allow EPA, its representatives (including duly authorized state agencies) and/or contractors to perform any activities necessary to assess, sample, inspect or otherwise evaluate any oil, contaminated materials and liquid wastes recovered in cleanup operations subject to this Directive, including access to any staging area, transfer station, decontamination areas and recycling, re-use or disposal facility, and any other facility or location where oil, contaminated materials and liquid wastes recovered in cleanup operations are or will be temporarily or permanently located or placed. Where such facilities or locations are in areas owned by or in possession of someone other than BP, BP shall use best efforts to obtain all necessary access agreements. Any such access agreement shall provide for access by EPA and its representatives and/or contractors to move freely in order to conduct activities that EPA determines to be necessary.
3. Compliance with Applicable Federal, State and Local Requirements. BP shall perform all actions required pursuant to this Directive and the Waste and Materials Management Plan in accordance with all applicable local, state, and federal laws and regulations. BP shall ensure that all facilities where any oil, contaminated materials and liquid wastes subject to this Directive are or will be temporarily or permanently located or placed have obtained all permits and approvals necessary under such laws and regulations.
4. Waste and Materials Management Plan Deliverables.
 - a. BP shall submit the following reports, plans or other submissions ("Deliverables") to implement the Waste and Materials Management Plan to the FOSC, with a copy by e-mail to Nancy Jones, On-Scene Coordinator, U.S. EPA Region 6, by no later than the dates indicated below:

<u>Plan Section and Page Number</u>	<u>Name of Deliverable</u>	<u>Due Date</u>
1. Section II, Page 5	Waste Sampling Plan (to include, but not be limited to: methods and protocols for periodic (weekly, or other period specified by EPA) sampling and analysis of each category of solid and liquid wastes specified in the Waste and Materials Management Plan sufficient to adequately identify and characterize the constituents present in recovered wastes; procedures for appropriate waste handling and disposal based on the results of the periodic sampling and analysis; and on-line posting of sampling results within 1 day of receipt)	Interim plan by 1 day of Directive; Final plan by 5 days of Date of Directive
2. Section III, Page 6 and Section VIII, Page 10	Tracking System/Reporting Plan (to include, but not be limited to: development of a uniform tracking system covering all affected states for recoverable product and liquid and solid wastes, specifying quantity or volume handled at each location where such product or waste is temporarily (e.g., staging area) or permanently located (e.g., disposal site, recovery facility); reporting of such information to EPA on a daily basis; and on-line posting of flow charts showing, for each category of recoverable products, and liquids and solid wastes, how such products or wastes are handled and locations where such products or wastes are temporarily (e.g., staging areas) or permanently (e.g., disposal sites, recovery facilities) located, and updated within 24 hours of any changes)	5 days of Date of Directive
3. Section XI, Page 11 and Appendix A to this Directive	Community Outreach Plan (to include, but not be limited to: measures to engage local communities (e.g., widely publicized public meetings) regarding planned and ongoing waste handling and disposition activities; public availability of information and community outreach activities (including a process for response to public complaints or concerns); measures to minimize impacts on local communities from the operation of all staging areas, transfer stations, decontamination areas, recycling, re-use and disposal facilities, and any other facility or location where recovered wastes will be temporarily or permanently located or placed, as well as transportation of wastes to and from such locations; on-line posting of such locations and transportation routes; and other measures identified in Appendix A)	5 days of Date of Directive
4. Appendix B to this Directive	Liquid Wastes and Materials Management Plan (to include, but not be limited to: provisions addressing the criteria, specifications and other matters identified in Appendix B, including monitoring, covering all affected states)	5 days of Date of Directive

b. Following BP's submission of each Deliverable, the USCG and EPA may require BP to revise the Deliverable(s) in response to USCG and EPA comments. In addition, the USCG and EPA may periodically require, or BP may request, a Deliverable to be revised or updated on an as-needed basis. BP shall revise or update the Deliverable only as specified by the USCG and EPA in writing. Upon receipt of the USCG and EPA's comment(s) to revise a Deliverable, BP shall have seven (7) calendar days to revise the Deliverable unless the USCG and EPA agree in writing to an extension of time if requested by BP. Such revisions or updates shall become subject to this Directive and shall be immediately implemented by BP.

c. Each Deliverable submitted pursuant to this Directive, or report, plan or other submission pursuant to the Waste and Materials Management Plan, shall be signed by an authorized and knowledgeable BP official, who shall certify to the truthfulness, accuracy and completeness of the data and information submitted.

5. Modification. BP shall comply immediately with the terms of this Directive, until cancelled or modified in writing by the FOSC, with the concurrence of EPA.

James Watson
Rear Admiral, USCG
Federal On-Scene Coordinator

Date: _____

Al Armendariz
Regional Administrator
U.S. EPA Region 6
Dallas, TX 75202

Date: _____

APPENDIX A

Community Outreach Plan: Guidelines for Community Engagement Activities

Section 1: Community Meetings

- Conduct community meetings for impacted populations and interested parties (to include populations within a 3 mile radius of each disposal facility and staging area)
- Hold periodic meetings (monthly, biweekly, etc.) to keep all parties informed of project activities, status updates, etc. (meeting frequency will be determined after consultation with the community, other relevant agencies, entities)
- Community meetings may be part of existing meetings being held by BP. However, if this approach is chosen, a portion of the meeting agenda will be reserved to address “waste management” status update/concerns.
- Identify meeting *date, time and location* that is easily accessible and acceptable to the community.
- Provide participants with information on the waste management activities that are taking place in their community during each meeting.
- Develop project fact sheets/handouts to address project activities. At a minimum, the fact sheet must include the information in Section 2 below.
- Each meeting will include a “Question and Answer” segment on the agenda to permit community dialogue.
- Ensure that information provided is presented in plain language and easy to understand for the general public.
- Ensure that information is provided in language(s) spoken in the impacted community.

Section 2: Written Materials/Handouts/Electronic/web-based communications

- At a minimum, meeting handouts/fact sheets will include

For Disposal Facilities/Landfills:

- Type of waste being accepted, overview of facility operations
- Quantity of waste accepted to date, facility capacity, future expansion consideration
- Environmental safeguards (liners & leachate collection systems, environmental monitoring, buffers)
- Hours of operation
- Transportation routes
- Best management practices (e.g., dust, odor, noise control)

Appendix A – Community Outreach Plan

- Source of waste
- How to report concerns (contact information including, name, phone number, and email address)
- How to get additional information (e.g., website address, contact information, etc.)
- Emergency procedures, contact information
- Site security, control of illegal dumping
- Wastewater, storm water management
- Information provided in plain language and easy to understand for the general public
- Information provided in language(s) spoken in the impacted community
- Inclusion of each disposal facility/landfill into Google Earth Application

For Staging and Decontamination Areas:

- Type of waste handled, staging area capacity, future expansion consideration
- Quantity of waste handled to date, overview of staging area operations
- Environmental safeguards (secondary containment, roll off liners, environmental monitoring, buffers)
- Hours of operation
- Transportation routes
- Source of waste
- Destination of waste
- Best management practices (e.g. dust, odor, noise control)
- How to report concerns (contact information including, name, phone number, and email address)
- How to get additional information (e.g., website address, contact information, etc.)
- Emergency procedures, contact info
- Site security, control of illegal dumping
- Wastewater, storm water management
- Information provided in plain language and easy to understand for the general public
- Information provided in language(s) spoken in the impacted community
- Inclusion of each staging area into Google Earth Application

Section 3: Public Concerns and Complaint Tracking

- Develop a process to address and respond to public concerns and complaints on the management of waste generated from cleanup operations. The process should include a web-based method for the public to submit its concerns and any complaints on waste management.
- Publish on BP's public website a spreadsheet that includes the following information for each complaint received:
 - Complaint number
 - Description of complaint
 - Response and outcome of complaint
 - Timeline, which includes date of the receipt of complaint, dates of response to complaint or action taken as a result of complaint

APPENDIX B

Liquid Wastes and Materials Management Plan

To facilitate a coordinated and expedited response to the issues related to liquid wastes, BP shall develop one comprehensive "Liquid Wastes and Materials Management Plan," (Liquids Plan) and submitted as provided in Paragraph 4 of the Recovered Oil, Contaminated Materials and Liquid Wastes Management Directive ("Waste Management Directive"). The Liquids Plan must cover all liquid wastes generated or anticipated to be generated from the spill at the MC-252 facility and recovery or cleanup response activities. The Liquids Plan must be more comprehensive than the requirements of the "Recovered Oil / Waste Management Plan – Houma Incident Command," as approved on June 14, 2010, and shall require BP to: identify all liquid waste streams from generation to final waste disposal; identify and describe the methods for characterizing each liquid waste stream; identify treatment options for the waste streams; and evaluate all reasonable disposal options, including available existing and proposed disposal facilities.

The following outlines several criteria, specifications and matters that must, at a minimum, be addressed in the Liquids Plan. In addition, the Liquids Plan may be further refined or updated, as provided by Paragraph 4.b of the Waste Management Directive. Section 1 covers general requirements that encompass all stages of liquid management from initial skimming to final disposal. The remaining sections include specific requirements for each stage of liquid wastes management.

1) General. The Liquids Plan must:

- a) Address all liquid wastes generated or anticipated to be generated during the entire cleanup response;
- b) Describe the decision criteria, and estimate volumes anticipated, for how the different liquid waste streams (i.e., skimming, decontamination, etc.) will be handled from generation of waste to final disposal (i.e., UIC wells, pre-treatment facilities, direct discharges, etc.);
- c) Describe the tracking and reporting method for volumes, types, and fates of liquid wastes handled;
- d) Describe ongoing monitoring and reporting approach (protocols for sampling and characterizing all waste streams) for physical and chemical composition of liquid wastes handled (i.e. concentrations of pollutants in the liquid waste);
- e) Identify all existing and proposed facilities that are/can receive any liquid wastes and explain their respective processes and waste streams associated;
- f) Identify and describe all storage options available for all liquid wastes prior to treatment/disposal, including locations;
- g) For each method of liquid waste disposal proposed, (1) specify the proposed treatment method, (2) the criteria to be used to ensure that the liquid waste is compatible with the identified treatment option(s) and will not cause adverse impacts; and (3) identify any chemical dispersants, flocculants, chemical, or other additives to be used in the treatment process (include Material Data Safety Sheets);
- h) Specify all permit applications (new or modifications) that will be required for disposal options per state (e.g. Apex, Aaron Oil) and estimate dates of submission to appropriate agencies if known;

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- i) Discuss oil/emulsion/water separation methodologies (include in your description what emulsion breaking chemical constituents have or will be added; in all waste streams, what other chemical additives are being or anticipated to be used or generated as a result of the oil/emulsion/water treatment and provide a complete listing of all chemicals and/or other materials that could be added); and
 - j) Discuss any analysis of removed liquid wastes, at any stage between initial skimming and final disposal, (including volumes, chemical addition, physical observations, chemical analysis, etc) that has been conducted or is planned.
- 2) Skimming/Treatment of Barge Liquid. The Liquids Plan must:**
- a) Identify and discuss whether emulsion breaking chemical constituents or any other constituents are being added when the skimming process is underway on the skimmer barge vessels that decant components of the oil/emulsion/water at sea; and
 - b) Address waste streams associated with vessel/contaminated boom/etc. decontamination.
- 3) On-Shore Treatment/Disposal.**
- a) **UIC. The Liquids Plan must:**
 - i) Identify the current estimated volume in barrels or gallons of wastes to be handled as RCRA Exploration & Production ("E & P") wastes (decant water/oily brine) that BP's skimming operations will collect and that will need to be injected via Class II and/or Class I non-hazardous injection wells or otherwise disposed of;
 - ii) Based on current and projected/future volumes of liquid waste, etc., include a discussion of all existing and proposed "commercial" Class I and II injection facilities;
 - iii) In conjunction with liquid storage options, identify: (1) the total capacities of all existing and proposed injection facilities to dispose of E & P wastes; and (2) the quantity currently being injected (i.e., how much capacity would be available for BP to use at these locations), and include documentation of capacity available at the disposal facility for BP use;
 - iv) Identify and discuss other injection well options; and
 - v) Include a sampling plan for all E & P wastes (i.e., decant water/oily brine) and identify the lag time between when the samples are taken and when BP receives the results of the analyses.
 - b) **Pretreatment and discharge to existing NPDES-permitted facility or direct discharge. The Liquids Plan must:**
 - i) Identify the amount of liquid waste that currently needs to be treated, where such waste was or will be sent to be treated, and what the volumes are anticipated to be sent to each facility used for final disposal;
 - ii) Estimate when the barge can be used to characterize and analyze the wastewater;
 - iii) Identify the maximum volume of decanted wastewater BP anticipates will need to be sent from centralized waste treatment systems to POTWs for further treatment, and identify each wastewater treatment facility that is anticipated to be used;
 - iv) Describe the anticipated effluent characteristics for the modular processing facility being constructed in Theodore, AL, that will provide treatment of the oil/emulsion/water;

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- v) For each treatment facility that you are using, list: (1) the daily treatment capacity; (2) the pretreatment permit limits (e.g., flow and salinity limits);
 - vi) For any treatment/disposal facilities proposed or approved, describe how salinity will be addressed; and
 - vii) If direct discharges to surface water are proposed, identify all proposed outfall locations and receiving waters.
- 4) **Ocean Discharging.**
- a) **The Liquids Plan must address the fact that transporting liquid wastes from the shore for discharge in the Ocean will ONLY be considered an option after ALL on-shore disposal options have been depleted. If this occurs, BP must submit a request within a reasonable amount of time to allow for a comprehensive evaluation of this option, including an evaluation of the need for an emergency MPRSA permit for the proposed activity, while disposal continues. The request must address the following questions (and additional questions as necessary) regarding facts relevant to MPRSA issues:**
 - i) Describe any potential effects of discharges or dumping of the processed decant water on the marine environment, especially water quality, sediment quality, and aquatic life and provide information on (1) volume/constituents in discharge, (2) relevant sampling results or monitoring data, and (3) WET tests, etc;
 - ii) Discuss in detail all of BP's land-based storage and disposal options that have been/are in use and why they are no longer available;
 - iii) Discuss whether BP has considered the placement of the modular decanted water (from oil/water separation) treatment facilities on abandoned and/or active oil and gas platforms; and
 - iv) Identify the sites/locales being contemplated for open water disposal of decant liquid and note whether such sites/locales are near skimming operations.
 - b) **The Liquids Plan must also address all liquid wastes collected and disposed of at sea in accordance with the Act to Prevent Pollution from Ships and MARPOL. All such waste disposed of at sea must be documented and reported to FOSC. The Liquids Plan must also address the question set forth in paragraph 4)a)i) of this Appendix.**

